

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-36 (Canceled)

37. (Currently Amended) An image sensing apparatus comprising:

an image sensor which separately outputs image signals of ~~a plurality of divided areas of, each area having~~ a plurality of photoreceptive pixels[[,]] from a plurality of output ~~terminals~~ channels ~~respectively corresponding to the plurality of divided areas;~~

a reference level acquisition unit adapted to acquire a first reference level based on the image signals output from said output ~~terminals~~ channels when said image sensor reads a white member, and acquire a second reference level based on the image signals output from said output ~~terminals~~ channels when said image sensor reads a reference density member having a predetermined density of half tone; and

an adjustment unit adapted to adjust ~~level~~ levels of the image ~~signal~~ signals output from each of said output ~~terminals~~ channels so ~~as to that level of the image signal output from each of~~ said output ~~terminals~~ substantially ~~corresponds~~ correspond with said first reference level when said image sensor reads said white member, ~~and adjust level~~ levels of the image ~~signal~~ output from each area of said image sensor so ~~that level of the image signal output from each of~~ said output ~~terminals~~ channels so as to substantially ~~corresponds~~ correspond with said second reference level when said image sensor reads said reference density member, and adjust levels of the image signals output from said output channels so as to substantially correspond with a

level obtained by interpolating between said first and second reference levels when said image sensor reads an image having a density other than the density of said white member and said reference density member.

38. (Original) The image sensing apparatus according to claim 37, wherein said reference density member is provided within the image sensing apparatus.

39. (Previously Presented) The image sensing apparatus according to claim 37 further comprising a platen for placing an original to be read on it,
wherein said image sensor reads said reference density member in a case where said reference density member is placed on said platen.

40. (Previously Presented) The image sensing apparatus according to claim 37, wherein at least one of the first and second reference levels is set in advance.

41. (Previously Presented) The image sensing apparatus according to claim 37, wherein said first reference level is an average of signal levels when said white member is scanned.

42. (Previously Presented) The image sensing apparatus according to claim 37, wherein said first reference level is a maximum of signal levels when said white member is scanned.

43. (Previously Presented) The image sensing apparatus according to claim 37, wherein said first reference level is a minimum of signal levels when said white member is scanned.

44. (Currently Amended) The image sensing apparatus according to claim 37, wherein said second reference level is an average of signal levels when said reference density ~~board~~ member is scanned.

45. (Currently Amended) The image sensing apparatus according to claim 37, wherein said second reference level is a maximum of signal levels when said reference density ~~board~~ member is scanned.

46. (Currently Amended) The image sensing apparatus according to claim 37, wherein said second reference level is a minimum of signal levels when said reference density ~~board~~ member is scanned.

47. (Currently Amended) The image sensing apparatus according to claim 37, wherein said first reference level is a maximum of signal levels when said white member is scanned and said second reference level is a minimum of signal levels when said reference density ~~board~~ member is scanned.

48. (Previously Presented) The image sensing apparatus according to claim 37, wherein said adjustment unit adjusts maximum levels of image signals so that they become maximum levels after adjustment.

49. (Previously Presented) The image sensing apparatus according to claim 37, wherein the levels between said first and second reference levels are interpolated by a straight line.

50. (Previously Presented) The image sensing apparatus according to claim 37, wherein the levels between said first and second reference levels are interpolated by a curve.

51. (Original) The image sensing apparatus according to claim 37, wherein the interpolation is performed by operation.

52. (Original) The image sensing apparatus according to claim 37, wherein said adjustment data is in a form of a look up table.

53. (Currently Amended) The image sensing apparatus according to claim 37, wherein said ~~image sensor separately outputs signals of a right side divided area from signals of a left side divided area~~ plurality of output channels comprise a first output channel which outputs image signals of even-numbered photoreceptive pixels, and a second output channel which outputs image signals of even-numbered photoreceptive pixels.

54. (Original) The image sensing apparatus according to claim 37, wherein said image sensor is a linear image sensor.

55 (Original) The image sensing apparatus according to claim 54, wherein a plurality of said linear image sensors respectively corresponding to a plurality of colors are provided to form a color image sensor.

56. (Original) The image sensing apparatus according to claim 37, wherein said image sensor is an area image sensor.

57. (Currently Amended) The image sensing apparatus according to claim 37, wherein each of said plurality of signal processing units includes an amplifier for amplifying the image signal output from the output ~~terminal~~ channel.

58. (Currently Amended) The image sensing apparatus according to claim 37, further comprising A/D converters each adapted to convert the image signal output from each output ~~terminal~~ channel from an analog signal to a digital signal.

59. (Original) The image sensing apparatus according to claim 39, wherein the image sensing apparatus is connected to a printer and said reference density member is printed by said printer.

60. (Original) The image sensing apparatus according to claim 37, wherein said reference density member has at least a portion of uniform density.

61. (Original) The image sensing apparatus according to claim 59, wherein the image sensing apparatus is integrally configured with said printer.

62. (Currently Amended) An adjustment method of adjusting image signals in an image sensing apparatus having an image sensor which separately outputs image signals, ~~each area having a plurality of divided areas~~ of a plurality of photoreceptive pixels[[,]] from a plurality of output ~~terminals~~ channels ~~respectively corresponding to the plurality of divided areas~~, said method comprising:

a reference level acquisition step of acquiring a first reference level based on the image signals output from said output ~~terminals~~ channels when said image sensor reads a white member, and acquiring a second reference level based on the image signals output from said output ~~terminals~~ channels when said image sensor reads a reference density member having a predetermined density of half-tone;

a first reading step of scanning said white member by said image sensor and outputting image signals;

a second reading step of scanning said reference density ~~board~~ member by said image sensor and outputting image signals; and

an adjustment step of adjusting ~~level~~ levels of the image ~~signal~~ signals output from ~~each~~ of said output ~~terminals~~ channels ~~in said first reading step so as to that level of the image signal output in said first reading step~~ substantially ~~corresponds~~ correspond with said first reference

level, ~~and adjusting level~~ levels of the image signal signals output from said output terminals in said second reading step so as to each area of said image sensor so that level of the image signal output in said second reading step substantially corresponds correspond with said second reference level, ~~and adjusting levels of the image signals output from said output channels so as to substantially correspond with a level obtained by interpolating between said first and second reference levels when said image sensor reads an image having a density other than the density of said white member and said reference density member.~~

63. (Original) The adjustment method according to claim 62, wherein said reference density member is provided within the image sensing apparatus.

64. (Original) The adjustment method according to claim 62, wherein the image sensing apparatus further comprises a platen for placing an original to be read on it, and in said second reading step, said reference density member placed on said platen is read.

65. (Previously Presented) The adjustment method according to claim 62, wherein at least one of the first and second reference levels is set in advance.

66. (Previously Presented) The adjustment method according to claim 62 further comprising a step of calculating an average of signal levels obtained in said first reading step as said first reference level.

67. (Previously Presented) The adjustment method according to claim 62 further comprising a step of acquiring a maximum of signal levels obtained in said first reading step as said first reference level.

68. (Previously Presented) The adjustment method according to claim 62 further comprising a step of acquiring a minimum of signal levels obtained in said first reading step as said first reference level.

69. (Currently Amended) The adjustment method according to claim 62 further comprising a step of calculating an average of [[25]] signal levels obtained in said second reading step as said second reference level.

70. (Previously Presented) The adjustment method according to claim 62 further comprising a step of acquiring a maximum of signal levels obtained in said second reading step as said second reference level.

71. (Previously Presented) The adjustment method according to claim 62 further comprising a step of acquiring a minimum of signal levels obtained in said second reading step as said second reference level.

72. (Previously Presented) The adjustment method according to claim 62 further comprising:

a step of acquiring a maximum of signal levels obtained in said first reading step as said first reference level; and

a step of acquiring a minimum of signal levels obtained in said second reading step as said second reference level.

73. (Canceled)

74. (Previously Presented) The adjustment method according to claim 62, wherein the levels between said first and second reference levels are interpolated by a straight line.

75. (Previously Presented) The adjustment method according to claim 62, wherein the levels between said first and second reference levels are interpolated by a curve.

76. (Original) The adjustment method according to claim 62, wherein the interpolation is performed by operation.

77. (Original) The adjustment method according to claim 62, wherein said adjustment data is in a form of a look up table.

78. (Currently Amended) The adjustment method according to claim 62, wherein said ~~image sensor separately outputs signals of a right side divided area from signals of a left side divided area~~ plurality of output channels comprise a first output channel which outputs

image signals of even-numbered photoreceptive pixels, and a second output channel which outputs image signals of odd-numbered photoreceptive pixels.

79. (Original) The adjustment method according to claim 62, wherein said image sensor is a linear image sensor.

80. (Original) The adjustment method according to claim 79, wherein the image sensing apparatus a plurality of said linear image sensors respectively corresponding to a plurality of colors are provided to form a color image sensor.

81. (Original) The adjustment method according to claim 62, wherein said image sensor is an area image sensor.

82. (Currently Amended) The adjustment method according to claim 62, further comprising a step of amplifying the image signal output from each of the output ~~terminals~~ channels.

83. (Currently Amended) The adjustment method according to claim 62, further comprising a step of converting the image signal output from each of the output ~~terminals~~ channels from an analog signal to a digital signal.

84. (Original) The adjustment method according to claim 64, wherein the image sensing apparatus is connected to a printer, and the adjustment method further comprises a step of printing said reference density member by said printer.

85. (Original) The adjustment method according to claim 62, wherein said reference density member has at least a portion of uniform density.

86. (Currently Amended) A computer program product comprising a computer usable medium having computer readable program code means embodied in said medium for an adjustment method of adjusting image signals in an image sensing apparatus having an image sensor which separately outputs image signals, ~~each area having a plurality of divided areas~~ of a plurality of photoreceptive pixels[[,]] from a plurality of output ~~terminals~~ channels ~~respectively corresponding to the plurality of divided areas~~, said product including:

first computer readable program code means for acquiring a first reference level based on the image signals output from said output ~~terminals~~ channels when said image sensor reads a white member, and acquiring a second reference level based on the image signals output from said output ~~terminals~~ channels when said image sensor reads a reference density member having a predetermined density of half tone;

second computer readable program code means for scanning said white member by said image sensor and outputting image signals;

third computer readable program code means for scanning said reference density ~~board~~ member by said image sensor and outputting image signals;

fourth computer readable program code means for adjusting ~~level~~ levels of the image ~~signal~~ signals output from ~~each of said output terminals~~ channels so ~~as to that level of the image~~ signal substantially ~~corresponds~~ correspond with said first reference level when said white member is scanned, ~~and~~ adjusting ~~level~~ levels of the image ~~signal~~ signals output from ~~said output terminals~~ so as to each area of said image sensor so that level of the image signal substantially ~~corresponds~~ correspond with said second reference level when said reference density ~~board~~ member is scanned, ~~and~~ adjusting levels of the image signals output from said output channels so as to substantially correspond with a level obtained by interpolating between said first and second reference levels when said image sensor reads an image having a density other than the density of said white member and said reference density member.

87-89 (Canceled)